Barriers and Facilitators to Recreational Walking

THE UNIVERSITY of EDINBURGH

Barriers and Facilitators to Recreational Walking: An Evidence Review

Produced by the Physical Activity for Health Research Centre (PAHRC)

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Executive Summary

This report was commissioned by Ramblers Scotland and Paths for All - two of Scotland's most prominent walking charities - to illustrate what the existing evidence base tells us about barriers and facilitators to recreational walking in Scotland.

The evidence review was conducted by the team at the Physical Activity for Health Research Centre (PAHRC), at the University of Edinburgh. The objectives were to:

- Summarise the existing evidence on barriers and facilitators to recreational walking in Scotland;
- Highlight gaps in the evidence base;
- Make the case for specific actions and strategy for walking advocates, groups and organisations.

The review identified 12 critical factors that can act as barriers and/or facilitators to recreational walking. Organised by the levels of the Ecological framework, these were:

Individual Factors:

Ill-health and poor health status, Awareness of health and well-being benefits, Knowledge of routes and options, Existing negative attitudes to walking, Experience of walking and sense of achievement, and Practicalities and expectations of walking and walking ability.

Social Environment Factors:

Companionship and Social deprivation

Physical Environment Factors:

Scenery and landscapes, Natural environment, Accessibility and access, and Safety

Analysis of these factors generated a series of recommendations for Ramblers Scotland, Paths for All, other walking advocates, and for future research priorities. Some of these factors could be directly addressed by walking advocates while others may be harder or impossible to modify (e.g., age, gender, SIMD) but which still give indications for specific target groups in the Scottish population.

Action across all these areas is likely to contribute to increasing levels of recreational walking in Scotland, and in turn contribute to improved health and well-being outcomes.

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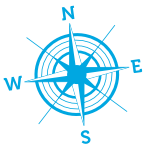
Summary of Recommendations



Explored in detail later in the report

RECOMMENDATION 1:	Target individuals with ill health through relevant advertising, communication, support and resource strategies. Emphasis on the role of activity on improving health and reducing further decline may be effective. Settings such as GPs, hospitals, nursing homes, and physiotherapists may be relevant, with links to local opportunities.
POTENTIAL FURTHER RESEARCH 1:	Research through focus groups and questionnaires to better understand the specific barriers to and solutions for increasing recreational walking in groups experiencing different chronic ill-health conditions may be warranted.
RECOMMENDATION 2:	Promote the many health benefits walking can bring through communication and messaging.
POTENTIAL FURTHER RESEARCH 2:	Research aiming to understand the most effective messages and communication techniques to promote recreational walking for each segment of Scottish society could inform strategy and approach.
RECOMMENDATION 3:	Increase provision of local route and mapping information, including barriers/ challenges/difficulties that may be encountered through a variety of different channels and dissemination approaches.
POTENTIAL FURTHER RESEARCH 3:	Address evidence gap on where, and for whom, in Scotland this information is most needed and the most suitable format (e.g. at the route, online, print, etc.) of communicating it.
RECOMMENDATION 4:	Walking advocates could consider social media campaigns aimed at influencing the perceived image and existing attitudes to recreational walking. These may be most relevant to younger audiences.
POTENTIAL FURTHER RESEARCH 4:	Undertake research to more fully understand attitudes to recreational walking (and by population sub-group including age and gender), and use contemporary theoretical perspectives to inform research to change attitudes and behaviour.
RECOMMENDATION 5:	Promote areas of interest, monuments, and destinations as part of route and walking option information.
POTENTIAL FURTHER RESEARCH 5:	Conduct research on what areas of interest and features are most popular for different groups of recreational walkers.

Summary of Recommendations

Explored in detail later in the report

RECOMMENDATION 6:	Walking advocates could lead an informative campaign using multiple platforms aimed at highlighting the convenient, low cost and time-flexible nature of recreational walking. Short, local walks with minimal travel commitments could be emphasized.
POTENTIAL FURTHER RESEARCH 6:	Conduct research into how to best reach and impact those with low expectations of personal walking ability. Understand what sort of recreational walking may be most appealing and be likely to provide success that will increase self-efficacy for future walks.
RECOMMENDATION 7.1:	Promote walking groups as a way of finding companionship, and provide opportunities to link those looking to walk with others.
RECOMMENDATION 7.2:	Market more dog friendly routes for walking to attract those who like to walk with their pets, while promoting cooperation between dog walkers and non-dog walkers.
POTENTIAL FURTHER RESEARCH 7:	Conduct research into what forms of companionship and social support are most effective for different groups to promote recreational walking.
RECOMMENDATION 8:	Walking advocates could identify and target specific groups (e.g. by SIMD) where levels of recreational walking are lower. Targets and resource requirements may need to be customised for certain groups.
POTENTIAL FURTHER RESEARCH 8:	Conduct research to understand if different approaches or simply more intensive approaches could be effective in low SIMD groups.
RECOMMENDATION 9:	Advertise the vast array of beautiful scenery and pleasant landscapes across Scotland, including information on location and local accessibility.
POTENTIAL FURTHER RESEARCH 9:	Research into what images, scenery, and landscapes are most effective for different groups could help inform promotion and advertising.

RECOMMENDATION 7.1:

Promote walking groups as a way of finding companionship, and provide opportunities to link those looking to walk with others.

Summary of Recommendations

Explored in detail later in the report

RECOMMENDATION 10:	Provide focused information on availability of green spaces and green trails, and consider highlighting the mental health benefits of exposure to greenery.
POTENTIAL FURTHER RESEARCH 10:	Research into what aspects of nature are most motivating for different groups could help inform promotion and advertising.
RECOMMENDATION 11:	Develop a strategy that coherently addresses known accessibility barriers to walking, and utilises known facilitators – including better paths.
POTENTIAL FURTHER RESEARCH 11:	Conduct research to understand the most important barriers related to accessibility and access to different groups and develop a package of potential solutions.
RECOMMENDATION 12:	Work with relevant bodies (e.g. existing hill/mountain walking guides and groups) to develop more "entry level" walks and experiences to improve skills around safety.
POTENTIAL FURTHER RESEARCH 12:	Conduct research to understand what safety factors are most important to people, and how to help improve feelings of safety.

Background and Context

WHY WAS THIS REVIEW COMMISSIONED?

This review was commissioned by Ramblers Scotland and Paths for All in summer 2019 to bring together the available evidence on barriers and facilitators to recreational walking, and to identify areas for potential further research.
We define recreational walking as walking which is conducted for leisure or fun, as opposed to active commuting or other utilitarian journeys.

Walking is the most accessible form of physical activity [1], known to confer both physical and mental health benefits [1-3]. It is therefore critical to develop a better understanding of the barriers and facilitators to recreational walking that are contextually relevant to Scotland.

ABOUT RAMBLERS SCOTLAND

Ramblers Scotland is recognised by **sport**scotland as a governing body of sport. It is also a membership organisation and a charity with a grassroots network of 54 local groups, running 3,500 group walks a year which are all led and organised by volunteers. It campaigns to protect and promote Scotland's landscapes and world-class access rights – and works to create a nation where everyone is encouraged and supported to enjoy the outdoors on foot.

Ramblers Scotland website:
www.ramblers.org.uk/scotland

ABOUT PATHS FOR ALL

Paths for All is a Scottish charity and a partnership of 30 national organisations committed to promoting walking for health and the development of multi-use path networks in Scotland.

Paths for All's vision is for a happier, healthier Scotland where physical activity improves quality of life and wellbeing for all. Its aim is to significantly increase the number of people who choose to walk in Scotland - whether that's leisure walking or active-choice walking to work, school or shops. Paths for All work to create more opportunities and better environments not just for walking, but also for cycling and other activities, to help make Scotland a more active, more prosperous, greener country.

Paths for All website:
www.pathsforall.org.uk

ABOUT THE REVIEW TEAM

The Physical Activity for Health Research Centre (PAHRC) was formed in January 2013 and is a research centre within the Institute of Sport, Physical Education and Health Sciences at the University of Edinburgh. The overall vision of PAHRC is to provide evidence of how to encourage people of all ages to 'sit less and move more'. Increasing physical activity and reducing sedentary time are major public health goals and PAHRC has a range of interdisciplinary expertise in this area. We have an extensive track record of conducting high quality evidence reviews for academic, policy and practice based audiences.

PAHRC website:
www.ed.ac.uk/education/rke/centres-groups/pahrc

ramblers scotland
at the heart of walking

paths for all
FOR A HAPPIER, HEALTHIER SCOTLAND

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Review Methods

This evidence review followed procedures based on rapid evidence reviews and scoping reviews, that consider available time and resources to select the most appropriate and feasible methods [4].

ESTABLISHING THE REVIEW AIMS

The overall aim was to review the academic and grey literature evidence on the barriers and facilitators to recreational walking in Scotland. The following objectives were outlined to meet this aim:

- Summarise the existing evidence on barriers and facilitators to recreational walking in Scotland;
- Highlight gaps in the evidence base;
- Make the case for specific actions and strategies for Ramblers Scotland, Paths for All and other walking advocates.

IDENTIFYING RELEVANT STUDIES

Data sources

For the grey literature search, key stakeholders in walking with potential access to evidence were contacted and asked to contribute any relevant articles or reports. These stakeholders included Ramblers Scotland, Sustrans, Paths for All, Living Streets, Sport England, Sport and Recreation Alliance, Forestry Commission Scotland, and Scottish Natural Heritage.
In addition, a search of the following organisations' websites was conducted using the predetermined search terms and parameters agreed upon by the research team (detailed below in Table 1). Websites of the following organisations were searched: NICE, Walking for Health, Scottish Natural Heritage, Department for Culture, Media and Sport, Healthier Scotland, Countries Access and Activities Network, Sport and Recreation, Paths for All, Sustrans, Natural England, Sport England, the Ramblers, Living Streets, Forestry Commission Scotland. Finally, a Google search using the search terms was conducted to find any other potential evidence not covered by the previous searches.

Academic sources were obtained by searching PubMed and Google Scholar using the specified search terms.

Search terms

The search strategy was to combine [walk*] or [step*] with the following keywords in Table 1.

Relevant - included	Not-relevant - not included
Leisure/Leisure-time Fun Hike/Hiking Recreation/Recreational Leisure Outdoor Life style/Lifestyle/Life-style Hill-walking/Hill walking Park Greenspace Dog walking	Utilitarian Transport Travel Active travel Rehabilitation Clinical need

Table 1: Search strategy for recreational walking evidence

STUDY SELECTION

Studies were included if they met (all of) the following inclusion criteria:

- Age: evidence relevant to adults aged 16+;
- Population: whole of population including those with chronic health conditions;
- Research articles or reports (any of):
  - Published in peer-reviewed academic journals;
  - Dissertations, or PhD/Master's theses;
  - Publicly available reports or evaluation reports (Grey literature);
- Published in English language.

Both quantitative (questionnaire) and qualitative (interview and focus group) data were eligible. While the focus of the review was to examine evidence from Scotland, relevant studies from UK and Ireland, and where appropriate international studies, were included.

CHARTING THE DATA

The data from each included study were extracted into a custom template. The information extracted included: year of publication, title, author(s), sample size and sample characteristics, study design characteristics and the main finding(s). From the main findings of each study, the barriers and facilitators to recreational walking were identified. These barriers and facilitators were then grouped into overarching themes which we named as critical factors. A list of these factors was then developed, and categorised by different levels according to an Ecological model of health behaviour change [5]. This model proposes that the factors which influence behaviours such as recreational walking can be influenced by factors at the individual, social (or interpersonal), environmental and policy levels *(see Figure 1)*.

COLLATING, SUMMARISING AND REPORTING THE RESULTS

The reporting framework was based on the Ecological model reporting at individual, social and environmental levels [6]. Within each level, factors were described with a summary of the evidence and concluded with recommendations for action and/or research. This format was designed with Ramblers Scotland at the outset of the review.

INTERVENTIONS TO PROMOTE WALKING

The study selection process identified 3 systematic reviews that were on the topic of walking intervention effectiveness. These were not included in the main findings as they did not meet the inclusion criteria to address the review aims, but relevant interventions from these reviews were highlighted as case studies of how to promote recreational walking at the end of the results section.

Results

EVIDENCE

We identified 29 studies that provide evidence on the barriers and facilitators to recreational walking. We found 15 studies from the academic literature (52%), and 14 studies from the grey literature (48%). This indicates an even split between grey and peer-reviewed academic sources, demonstrating the importance of evidence out-with academic research to this question.

In terms of region, 18 (62%) of the studies were conducted in Scotland. Six studies (21%) were conducted in England, and 5 (17%) were from international settings but were still considered relevant to the research question and eligible for inclusion. There were 4 systematic reviews, 10 interview or focus group based studies, 9 questionnaire based studies, 2 mixed methods studies, 1 study informed by an online steering group, and 1 expert summary.

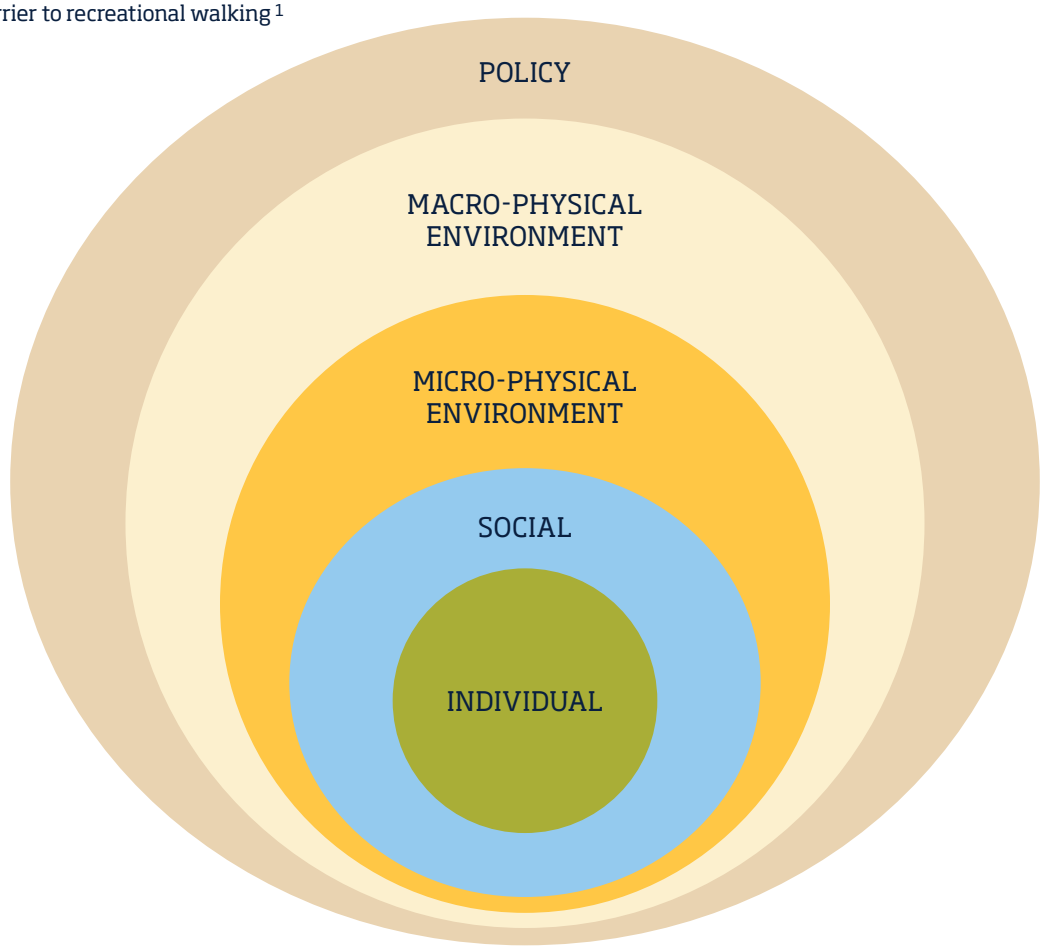
The dates of the studies ranged from 2002-2019 and the majority were based on questionnaires and/or interviews.

KEY FINDINGS

From the findings of these 29 studies we identified 12 "critical factors" that are considered to be facilitators of, or barriers to, recreational walking. We categorised these factors at the levels of the individual, social and environment, according to the Ecological model of determinants of health (see figure 1) [5]. These 12 "critical factors" are displayed in Table 2 below.

While no factors were found specifically at the policy level, it should be noted that many of the identified factors will be directly or indirectly influenced to differing extents by national, regional and local policy. For example, walkers will benefit from Scotland's progressive access legislation without necessarily reporting/acknowledging its impact.

Figure 1. Representation of levels at which factors can facilitate or be a barrier to recreational walking [1]



[1] Recreated from:
www.britishcycling.org.uk/zuvvi/media/bc_files/campaigning/2019/Cycle_Nation_Project_-_Evidence_Review.pdf

Table 2. Critical factors that can act as barriers to, or facilitators of, recreational walking

Factor	Description
POLICY	
1. Ill-health and poor health status	Poor physical or mental health is a barrier to recreational walking.
2. Awareness of health and well-being benefits	Higher awareness of the physical and mental health benefits of walking facilitate higher recreational walking levels.
3. Knowledge of routes and options	Awareness of local routes and information on where people are allowed to walk are seen as facilitators to recreational walking. Provision/availability of information on routes, paths and reassurance of suitability to use also act as facilitators.
4. Existing negative attitudes to walking	Lack of perceived reward, lethargy, a lack of interest and prioritising other physical activities are all barriers to recreational walking. Some (men in particular) feel walking is not for them, do not value it, and feel it is not worthwhile which can all be barriers.
5. Experience of walking and sense of achievement	Opportunities for walking to see a monument or feature are motivating and the sense of achievement from reaching the summit or end of a route are facilitators.
6. Practicalities and expectations of walking and walking ability	Personal expectations and practicalities can act as both barriers and facilitators. Practical expectations of one's own ability, expectations of others ability, being able to use the paths individually, being able to wear everyday clothing, time, and money are all factors that can facilitate or be a barrier to recreational walking.
SOCIAL	
7. Companionship	Walking with other people for companionship or with a dog is a motivator. A lack of such factors can be a barrier for some who do not want to walk alone. Group consensus can also act as a barrier if walking is not chosen as a social activity.
8. Social deprivation	Higher deprivation is consistently associated with lower levels of everyday and recreational walking.
ENVIRONMENTAL	
9. Scenery and landscapes	The opportunity to experience particularly beautiful or visually stunning scenery and landscapes is a motivational factor that can be a facilitator of recreational walking.
10. Natural environment	Simply being outside and experiencing any green spaces and the aesthetics of nature are facilitators to recreational walking. Weather also plays an important role as both a barrier and facilitator to recreational walking.
11. Accessibility and access	Not everyone has easy access to somewhere they want to walk, some have to drive or use other means to get to green spaces, which can all act as barriers. Some also feel they do not have the time, are too tired to start walking, or feel they will be too tired after a walk. Good maintenance and upkeep of paths is an important facilitator, as is access to toilets, seating and other amenities along paths.
12. Safety	Environmental factors can act as both barriers and facilitators. Including: traffic levels, safe places to cross roads, and better lighting. Personal safety factors such as feeling safe and comfortable to walk for recreation act as a facilitator to recreational walking.

The Factors

PART A

INDIVIDUAL FACTORS

1. ILL HEALTH AND POOR HEALTH STATUS

Evidence

Poor physical or mental health is a frequently cited barrier to recreational walking. At a national scale in Scotland, the Scotland's People and Nature Survey of over 12,000 Scottish adults [7] and a report on Public Attitudes to Walking in Scotland (>1,000 Scottish adults) [8], both reported poor health as a barrier. Similarly, telephone questionnaires of over 2,600 walkers in England found that almost a third of people reported deteriorating health as the biggest barrier to walking [9]. Furthermore, several academic studies based on data from England and Scotland [10-12] identified ill health as a key barrier to participation in outdoor recreation such as walking.

Implications

Walking charities such as Ramblers Scotland and Paths for All, should not be expected to address population-wide ill health in itself, but rather recognise it as an established barrier to recreational walking. It may be possible to make a difference to these population groups by targeting additional support and resources to reach and support as appropriate. In particular, focusing on the positive health benefits of activity, such as minimising further decline, could help to increase recreational walking levels in these groups. Linking individuals to existing 'rehab walking groups' run by other organisations could provide a pathway to this. Furthermore, promoting the message that 'something is better than nothing' where small bouts of walking are prioritised over longer bouts, could lead to increased engagement in populations with certain health conditions.

Access is often a co-existing barrier to walking for this group, as ill health may mean that more frequent breaks are required or that access to amenities is a necessity for engaging in outdoor activities. The Walking and Public Health Survey 2009 [13] found that more public amenities on routes are a facilitator of walking. Furthermore, ensuring that paths intended for universal access are free of physical barriers facilitates walking. Although providing more seating and public toilets will not entirely remove the barrier to recreational walking in those with ill health, it could still help to mitigate the effect.

RECOMMENDATION 1:	Target individuals with ill health through relevant advertising, communication, support and resource strategies. Emphasis on the role of activity on improving health and reducing further decline may be effective. Settings such as GPs, hospitals, nursing homes, and physiotherapists may be relevant, with links to local opportunities.
POTENTIAL FURTHER RESEARCH 1:	Research through focus groups and questionnaires to better understand the specific barriers to and solutions for increasing recreational walking in groups experiencing different chronic ill-health conditions may be warranted.

2. AWARENESS OF HEALTH AND WELL-BEING BENEFITS

Evidence

Higher awareness of the physical and mental health benefits of walking is consistently associated with higher recreational walking levels [11, 14]. A study that conducted phone interviews in England with 43 participants (aged between 45 and 75 years old) who had been a part of a walking intervention identified a desire for a healthy lifestyle and improving physical health as important facilitators in walking for recreation [12]. This was also found in Scotland with evidence from national surveys in Scotland identifying the same trend [10].

Implications

Walking advocates may benefit from continuing to promote the physical, social and mental health benefits of walking.
A particular focus on mental health benefits may resonate with current discourse in Scotland. This could include short terms benefits on mood, social contact, and self-confidence as well as longer-term benefits.

RECOMMENDATION 2:	Promote the many health benefits walking can bring through communication and messaging.
POTENTIAL FURTHER RESEARCH 2:	Research aiming to understand the most effective messages and communication techniques to promote recreational walking for each segment of Scottish society could inform strategy and approach.

3. KNOWLEDGE OF ROUTES AND OPTIONS

Evidence

Awareness of local routes and information on where people are allowed to walk are important facilitators for many people for recreational walking [15-17]. In addition, the provision of information on specific routes and paths, and reassurance of suitability to use them also act as facilitators [13, 17]. These findings come from a combination of online steering groups, interviews and questionnaires in Scottish adults. A lack of knowledge at an individual level on where people are allowed to walk recreationally is consistently cited as a key barrier to recreational walking. One recent survey of over 1,400 Scottish adults found that only half of people understand where they are legally allowed to walk, and many people (75%) believe that having more maps of allowed paths would enable more people to enjoy the outdoors [16].

Implications

In order to address this factor and facilitate more recreational walking, walking advocates can aim to increase the provision of information on local routes which are easily and legally accessible. This may include local route and mapping information. They could also provide clearer communication of the difficulty level of popular paths in order to assure more people they are suitable for them to use. Possible difficulties that walkers may encounter could include a lack of disabled access, no car park, no toilets, uneven surfaces, or steep gradients, all which would be more easily avoided or overcome with the increased provision of information (such as average time to complete route and type of footwear needed).
Further research may first be required to find out which areas of Scotland are most in need of this provision of information, as the literature is not specific. Social media could be particularly helpful at reaching new audiences (e.g. Instagram) as well as direct marketing such as flyers through the door or newspaper advertising to reach the older generation who are less likely to use or have access to some forms of social media.

RECOMMENDATION 3:	Increase provision of local route and mapping information, including barriers/ challenges/difficulties that may be encountered through a variety of different channels and dissemination approaches.
POTENTIAL FURTHER RESEARCH 3:	Address evidence gap on where, and for whom, in Scotland this information is most needed and the most suitable format (e.g. at the route, online, print, etc.) of communicating it.

4. EXISTING NEGATIVE ATTITUDES TO WALKING

Evidence

Existing negative attitudes to recreational walking can act as a barrier to participation for those who do not currently walk. In a study using 20 in-depth interviews and over 2,600 questionnaires, individuals reported prioritising other types of physical activity over walking [9]. In young people in particular, a lack of perceived reward or a lethargy towards recreational walking has been reported [18]. However, this study was conducted 15 years ago and up to date data on young people's attitudes to recreational walking in Scotland are needed. More promisingly, in a large study of 12,000 interviews of Scottish adults [7] it was found that only 5% reported being "not interested in visiting the outdoors" suggesting there may be scope use the outdoors as a way of overcoming negative attitudes to walking.

A study of Scottish men involved in a walking programme aimed at weight loss [19] found that there is a perceived reluctance among men to adopt walking due to perceptions and stereotypes that walking may be for women. This finding is supported by a global systematic review of gender differences in walking [20], which established that overall, more women than men walk for leisure, although with older age this gender difference does diminish substantially.

Implications

Consideration of how walking advocates may wish to influence the attitudes of the general population regarding recreational walking is needed. Additionally, reflection on when targeted approaches for sub-groups (e.g. younger adults, males, etc.) is a priority (or not) should be a part of these considerations. Related to the communication strategies discussed above, walking advocates could consider how to help improve the image of recreational walking. It may be that for specific audiences, utilising role models relevant to sub-groups would be an appealing approach.

RECOMMENDATION 4:	Walking advocates could consider social media campaigns aimed at influencing the perceived image and existing attitudes to recreational walking. These may be most relevant to younger audiences.
POTENTIAL FURTHER RESEARCH 4:	Undertake research to more fully understand attitudes to recreational walking (and by population sub-group including age and gender), and use contemporary theoretical perspectives to inform research to change attitudes and behaviour.

5. EXPERIENCE OF WALKING AND SENSE OF ACHIEVEMENT

Evidence

A facilitator identified in a review of the literature was that people often go out for a walk to see or experience certain monuments, features, landscape qualities or areas of interest [15]. Davies et al [14] found that across most of the focus groups they conducted, viewing areas of interest was a more significant motivator than the need to maintain physical health. Another motivating factor was a sense of achievement from reaching the summit or end of a route [21].

Implications

One way walking advocates could address this factor could be to advertise and promote areas of interest where people would need to walk in order to experience it. This may be related to information about routes and options discussed above. Walks that involve reaching a summit, destination, feature or completing a route may also help people to participate in walking for recreation so they feel the sense of achievement described in the evidence.

RECOMMENDATION 5:

Promote areas of interest, monuments, and destinations as part of route and walking option information.

POTENTIAL FURTHER RESEARCH 5:

Conduct research on what areas of interest and features are most popular for different groups of recreational walkers.

6. PRACTICALITIES AND EXPECTATIONS OF WALKING AND WALKING ABILITY

Evidence (practicalities)

Practicalities, such as time and money commitments, and a person's expectations around these factors can act as both barriers and facilitators to recreational walking. Expectations of time commitments is one of the most consistently cited constraints to many recreational activities, including walking [9, 15, 16, 18, 22]. In a study of 120 UK adults involved in focus group discussions, perceived busy lifestyles and working patterns were found to limit time available for recreational walking [14]. For others, an inflexible schedule or work patterns and commitments represent significant barriers; these make participants feel they are too busy or too tired after a walk [12, 14, 23]. In Scotland specifically, expected time pressures were identified as the second biggest barrier to getting outdoors [16]. Perceived financial commitments are also frequently cited as a barrier, especially in groups such as young people and families, where the perceived cumulative cost of engaging in outdoor recreation and lack of money can limit engagement [7, 18, 22].

However, individual perceptions of recreational walking in relation to time and money play an integral role in whether these practicalities are viewed as barriers. For example, for many recreational walking is viewed as a convenient, flexible activity, where time is not a barrier to engagement [24]. Similarly, money does not act as a barrier when recreational walking is perceived as low cost and inexpensive [19, 25-27]. Being able to wear everyday clothing is an important facilitator of recreational walking, as it can make it a more practical activity for many people, especially those who are unfit or overweight and are uncomfortable in gym clothing [22]. A 2014 study of adults in England, Scotland and Wales found that a greater percentage of non-obese people, in both males and females, regularly engaged in walking for pleasure than those who were obese. Although the causality of this is unclear, it indicates the importance that this factor could have when targeting a less engaged portion of the population [25].

Implications

Focusing on the positive aspects of walking in relation to time and money appears crucial. An informative campaign looking to decrease the number of people who perceive time and money as a barrier could be one way of increasing participation. Focusing on increasing awareness of the positive aspects of walking, such as its convenient, flexible and inexpensive nature, could address this. However, realistically, time and money are unmodifiable barriers for some of the population. Personal expectations are another barrier to walking that would be difficult to impact, however providing more information on the difficulty level of walks could assure people of their suitability to use them. A particular focus on walks that are suitable for different ages could help to address the personal expectations barrier in this population. It is worth noting that Ramblers Scotland group walks are popular with some older people. In Scotland the average age of members is approximately 63 years, and 62% of members are over 60 years.

RECOMMENDATION 6:	Walking advocates could lead an informative campaign using multiple platforms aimed at highlighting the convenient, low cost and time-flexible nature of recreational walking. Short, local walks with minimal travel commitments could be emphasized.
POTENTIAL FURTHER RESEARCH 6:	Conduct research into how to best reach and impact those with low expectations of personal walking ability. Understand what sort of recreational walking may be most appealing and be likely to provide success that will increase self-efficacy for future walks.

PART B

SOCIAL FACTORS

7. COMPANIONSHIP

Evidence

The social aspect of recreational walking can act as both a facilitator and barrier. Walking with other people for companionship can be an important facilitator [9, 11, 22]. A study of self-completed questionnaires (551 UK adults) found a lack of such companionship can be a barrier for some who do not want to walk alone [11].

Walking with a dog for company may also be a facilitator, with a survey of 45,000 adults showing almost 50% of all visits made to the natural environment in England in 2015 were for walking with a dog [28].

Implications

To address the social component of walking with other people, walking advocates could specifically promote the social options for recreational walking. This could be through linking walkers looking for company on walks, or through more focus on the social connections that can be made on led/group walks. The dog-walking data have clear implications for future walking promotion strategies for Scotland. There is the potential to market more dog and pet-friendly routes for walking as a way of increasing the number of recreational walkers. A 2018 survey of participation in outdoor recreation from the Scottish People and Nature Survey suggested that encountering dogs was not necessarily a barrier to non-dog owners [29].

RECOMMENDATION 7.1:	Promote walking groups as a way of finding companionship, and provide opportunities to link those looking to walk with others.
RECOMMENDATION 7.2:	Market more dog friendly routes for walking to attract those who like to walk with their pets, while promoting cooperation between dog walkers and non-dog walkers.
POTENTIAL FURTHER RESEARCH 7:	Conduct research into what forms of companionship and social support are most effective for different groups to promote recreational walking.

8. SOCIAL DEPRIVATION

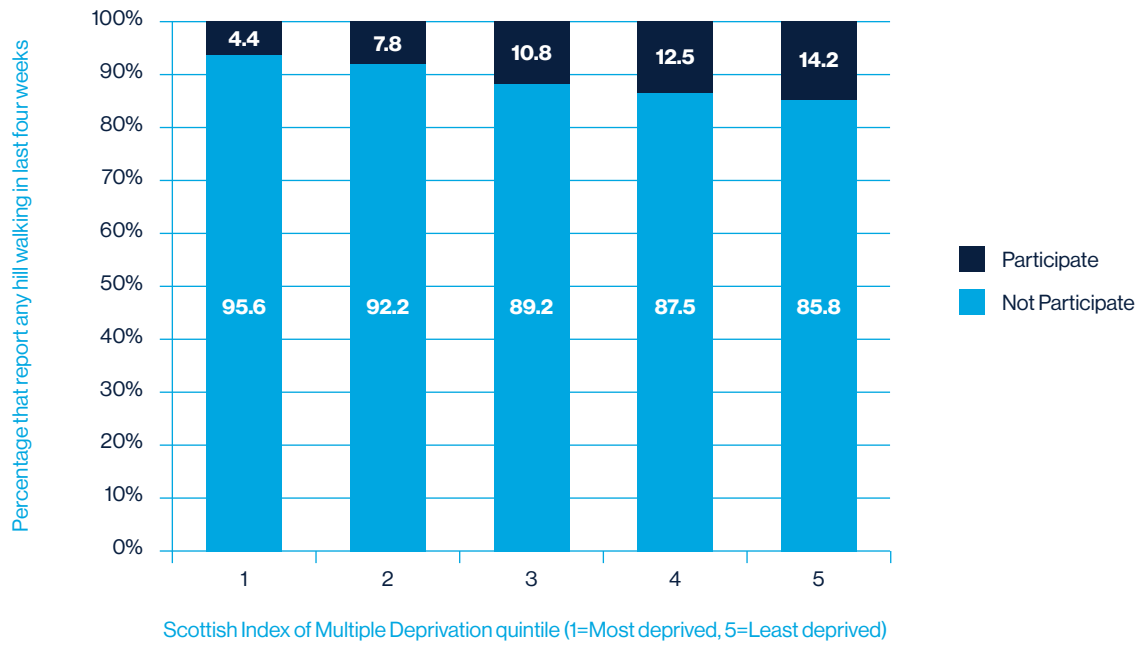
Evidence

The Scottish Health Survey asks questions on hill walking and rambling. We have conducted our own analysis of data from 2014-2017 of n=17,677 adults aged ≥16 years for this review and reported the proportions participating by Scottish Index of Multiple Deprivation (SIMD). The results are shown in Figure 2 below. There is a clear trend with SIMD with participation in hill walking over 3 times higher in the least deprived compared to the most deprived quintile. The 2017 Scottish Household Survey showed a similar trend with participation in recreational walking being 19% higher in the least deprived quintile compared to the most deprived [30].

Implications

Social deprivation and socio-economic status are clearly socio-political factors beyond the scope of any walking advocates to change on their own. Instead they should be viewed as indicating where levels of recreational walking are relatively lower and for who, and for which groups, targeted promotion may be warranted. At the same time, it is recognised that health behaviours can be harder to change in certain demographic groups. As such, targets and expected resource requirements may need to reflect this.

Figure 2. Proportions of population that report any hill-walking or rambling in last 4 weeks, by Scottish Index of Multiple Deprivation



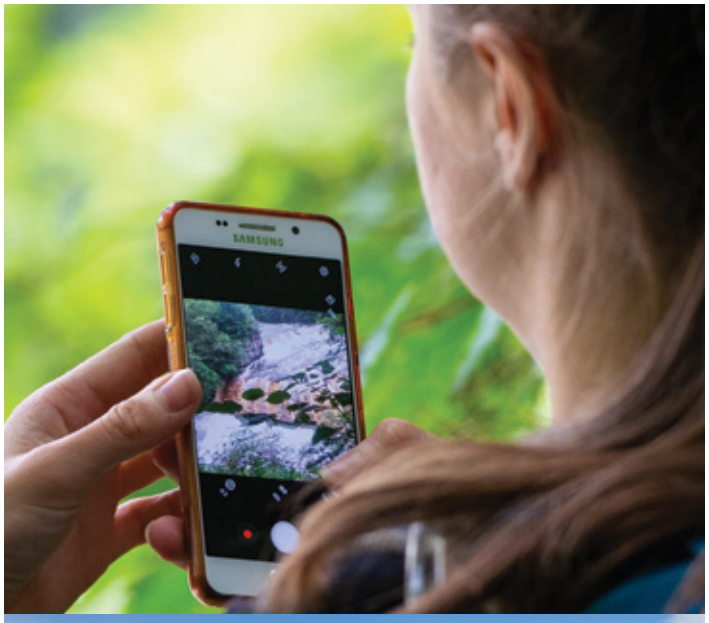
RECOMMENDATION 8:

Walking advocates could identify and target specific groups (e.g. by SIMD) where levels of recreational walking are lower. Targets and resource requirements may need to be customised for certain groups.

POTENTIAL FURTHER RESEARCH 8:

Conduct research to understand if different approaches or simply more intensive approaches could be effective in low SIMD groups.

PART C
ENVIRONMENTAL FACTORS



9. SCENERY AND LANDSCAPES

Evidence

Scenery and landscapes in Scotland are facilitators for recreational walking. There is consistent evidence that many people are motivated to walk in order to experience attractive landscapes, wildlife, rivers and hills [14, 15]. A study using data from the Scottish Household Survey found that wanting to experience aesthetic environments is significantly associated with higher levels of walking for exercise or recreation specifically [31]. Another study conducted in Scotland identified that walkers specifically drive to destinations in order to walk on natural terrain and get away from walking on tarmac [32].

Implications

The landscapes available across Scotland are a great resource, and walking advocates could seek to (further) maximise their effects. Promotion and advertising could focus on the natural beauty of Scotland, highlighting landscapes and scenery. Linked to previous recommendations, locally relevant imagery and locations could be highlighted so that people know what is most accessible for them.

RECOMMENDATION 9:	Advertise the vast array of beautiful scenery and pleasant landscapes across Scotland, including information on location and local accessibility.
POTENTIAL FURTHER RESEARCH 9:	Research into what images, scenery, and landscapes are most effective for different groups could help inform promotion and advertising.

10. NATURAL ENVIRONMENT

Evidence

The Scottish Health Survey asks questions on hill walking and rambling. We have conducted our own analysis of data from 2014-2017 of n=17,677 adults aged ≥16 years for this review and reported the proportions participating by Scottish Index of Multiple Deprivation (SIMD). The results are shown in Figure 2 below. There is a clear trend with SIMD with participation in hill walking over 3 times higher in the least deprived compared to the most deprived quintile. The 2017 Scottish Household Survey showed a similar trend with participation in recreational walking being 19% higher in the least deprived quintile compared to the most deprived [30].

Implications

Social deprivation and socio-economic status are clearly socio-political factors beyond the scope of any walking advocates to change on their own. Instead they should be viewed as indicating where levels of recreational walking are relatively lower and for who, and for which groups, targeted promotion may be warranted. At the same time, it is recognised that health behaviours can be harder to change in certain demographic groups. As such, targets and expected resource requirements may need to reflect this.

RECOMMENDATION 10:	Provide focused information on availability of green spaces and green trails, and consider highlighting the mental health benefits of exposure to greenery.
POTENTIAL FURTHER RESEARCH 10:	Research into what aspects of nature are most motivating for different groups could help inform promotion and advertising.

11. ACCESSIBILITY AND ACCESS

Evidence

Accessibility is composed of a number of related sub-factors including cost, ease, equipment, physical accessibility, and path quality and obstructions. Many high quality studies [19, 24, 25, 27], including a systematic review and meta-analysis [26] involving over 2 million participants from all over the world, identified the inexpensive nature of walking as a strong facilitator in participation for recreational purposes. The ease at which one can walk for recreation is also identified as a facilitator in the literature [25, 26]. Ease relates to not needing specialised equipment or specific clothing to go for walk, which is also a cost factor. Weather can be both a barrier and facilitator [12, 23, 31]. In Scotland, a lack of appropriate rainwear and footwear, or the cost of these items may be a barrier for some.

Relating to accessibility, not everyone has easy physical access to recreational walking; some have to drive or use other means to get to somewhere they want to walk [7]. For others, in some sections of paths, physical environmental obstruction can prevent access. For disabled people this can prevent them from being able to use the paths individually, as reported by a nationwide survey on the National Cycling and Walking Network in Scotland [34].

A recent online questionnaire of 1,444 adults in Scotland discovered that poorly maintained paths are the biggest barrier to going outdoors [16]. It has also been identified that features such as toilets or seating facilitate recreational walking [13]. Sustrans have reported that quality of path was a potential barrier to recreational walking when surveying 595 people on The National Walking and Cycling Network in Scotland (NWCN) [34].

Implications

In order for all walking advocates to help facilitate more recreational walking, the way that accessibility factors interact and what is most important to different people needs to be better understood. It may be that a combination of practical steps such as improving physical accessibility and facilities, and communication steps such as sharing solutions to various barriers is required. The evidence suggests that if paths can be kept clear, litter free and well maintained with facilities where possible this will have an impact on the number of people walking. On the other hand, the relatively low cost nature of recreational walking (especially when there are no/low travel costs) could be further utilised. It may be effective to promote different types of recreational walking to different groups based on capability, experience, and location.

Regarding weather, walking advocates may seek to find ways of providing appropriate clothing (or discounts) to help people address this barrier. Partnerships with various providers and communicating these opportunities may be important.

RECOMMENDATION 11: Develop a strategy that coherently addresses known accessibility barriers to walking, and utilises known facilitators – including better paths.

POTENTIAL FURTHER RESEARCH 11: Conduct research to understand the most important barriers related to accessibility and access to different groups and develop a package of potential solutions.

12. SAFETY

Evidence

Personal and environmental safety is an integral part of engaging in many forms of outdoor recreation, including walking. This includes feeling safe and comfortable when walking and it is a strong facilitator to recreational walking [15, 18]. As found by a large global study, perceptions of a safe neighbourhood are associated with walking for recreation [35]. In contrast, when individuals are worried about their safety, this becomes a barrier to visiting the outdoors [7]. This could include concerns about crime, getting lost, or being in unfamiliar surroundings. In Scotland, a recent study of participants in a walking programme found that some people felt a level of risk when walking alone, which discouraged those participating [23] which may link to the 'Companionship' factor.

Safe environments can facilitate walking, and these are characterised by key aspects such as good lighting, safe places to cross, lower vehicle speeds and traffic levels [13]. When individuals have safety concerns about their walking environment, this acts as a barrier.

Implications

It may be challenging for walking advocates to modify the factor of safety across Scotland's rural and urban environments. The challenge of making safety improvements may differ by urban and rural location. Therefore they may wish to highlight and communicate about areas already considered safe and highlight the qualities of these places.

Walking advocates may be able to help people feel more safe in certain environments by providing information on good practice when walking recreationally e.g. what to take with you, how to avoid getting lost, how to spot natural hazards, etc.

RECOMMENDATION 12:	Work with relevant bodies (e.g. existing hill/mountain walking guides and groups) to develop more "entry level" walks and experiences to improve skills around safety.
POTENTIAL FURTHER RESEARCH 12:	Conduct research to understand what safety factors are most important to people, and how to help improve feelings of safety.

Summary of Interventions

A number of systematic reviews exist on promoting walking, with the most recent being published in 2018. We identified 3 seminal reviews of interventions to increase all-purpose walking (see below).

The overall finding is that many different intervention techniques have been implemented to promote walking at both individual and population level with varying levels of success. There is a lack of specific studies on recreational walking, indicating a need for future research.

REVIEW 1: INTERVENTIONS TO PROMOTE WALKING: SYSTEMATIC REVIEW (2007)

The aim of this review was to assess the effects of interventions to promote walking in individuals and populations [24]. 19 randomised controlled trials and 29 non-randomised controlled trials were included. These were then split into 2 categories: Effects of interventions on walking in general (n=27) and Effects of interventions on walking as a mode of transport (n=21). Of the "in general" studies, 25 reported an increase in walking, with 13 of these being reported as significant. None of the studies included in this review specifically focused on interventions targeted at walking for recreation.

This review found evidence that people can be encouraged to walk more by interventions tailored to their needs, targeted at the most sedentary or at those most motivated to change, and delivered either at the level of the individual or household or through group-based approaches.

REVIEW 2: INTERVENTIONS TO INCREASE WALKING BEHAVIOUR (2008)

This systematic review found 14 randomised controlled trials that tested interventions specifically targeted to walking behaviour performed at home, at work and during leisure-time [36]. Findings showed promise for intensive walking promotion interventions even with follow-up periods of up to 10 years. Findings from studies examining various components of walking interventions showed that brief telephone prompts may be helpful in increasing walking behaviour, and that prescribing moderate intensity walking 5–7 days per week in either single or multiple sessions per day may be most effective for increasing walking. Evidence indicated that interventions developed around theoretical frameworks are more effective than those with no theoretical grounding. Findings also showed mass media campaigns often raise awareness, but typically do not produce behaviour change at a population level. In this systematic review there was one study (Humpel 2004; see below) that focused on recreational walking.

"Trial of print and telephone delivered interventions to influence walking" (Humpel 2004)

This study aimed to assess the effectiveness of both self-help print materials and telephone counselling to promote walking for specific purposes, including leisure [37]. Participants (n=399) were assigned to one of two groups; a 3 week intervention of receiving either 1) multiple printed brochures that emphasised walking in local community environments or 2) receiving the same brochures as group 1 and also participating in three telephone calls. Data were collected via self-completed mail surveys to analyse the outcomes of walking.

Brochures promoted opportunities to walk in the local environment, the benefits of walking, how much walking is needed for health benefits, places to go that may encourage walking, how to overcome certain barriers to walking, contact for local walking groups and how to plan walks. Maps of local green spaces, paths and trails ere also provided.

There were no significant differences between the two groups for any walking measure analysed. Both groups found the materials provided moderately to extremely useful information with the telephone group reporting that the brochures influenced their walking behaviour. Both groups increased walking, however it was found that the group receiving telephone counselling increased their attention on the provided walking brochures, producing a 'boost effect'. The intervention was most successful at increasing walking for exercise over any other walking outcome. The intervention materials were found to have a greater impact when walking could happen elsewhere, not just within the local environment. A positive trend also existed for walking for pleasure (a non-significant 36% increase in the print plus telephone group).

Whilst telephone calls for a mass audience is unlikely to be feasible, text, email or application prompts could be suggested for any future interventions to gain a 'boost effect' of information provided.

REVIEW 3: WHAT WORKS TO PROMOTE WALKING AT THE POPULATION LEVEL? A SYSTEMATIC REVIEW (2018)

The aim of this 2018 study was to review the effectiveness of population approaches to promote walking among individuals and populations, both recreational and utilitarian [38]. 12 studies were included from mostly urban high-income settings and used the following approaches to promote walking: taxation based incentives to give up parking spaces (n=1), policy changes permitting off-leash dogs in parks (n=1), mass media with either environment or community approaches (n=5), environmental changes combined with policy (n=4) and school-based initiatives to promote safe school routes (n=1).
The review found that mass media, community initiatives and environmental change approaches were most effective in increasing walking (increases from 9 to 75 min/week). Of the 12 studies included, two were of particular interest due to their focus on recreational walking.

Effects of a new walking and cycling route on leisure-time physical activity of Brazilian adults: A longitudinal quasi-experiment (Pazin 2016)

The aim of this study was to evaluate the effects of a new walking and cycling route on leisure-time physical activity [39]. They also looked at the use, intention to use and barriers to using the new route.

A longitudinal quasi-experiment was carried out, with data collection occurring in 2009 and 2012. Three exposure groups, based on the distance from home to the new route: 0–500 m, 501–1000 m and 1001–1500 m, were interviewed by telephone. The study took place in a middle-income area with heavy vehicle traffic in Brazil.

The study found that those living around the new route increased their leisure-time walking by 15 min/week on average. Those living up to 500m away from the route increased leisure-time walking by 30 min/week. In all three groups, a percentage of people reported starting walking in leisure time after the new route was opened (0-500 m – 35%, 501-1000 m – 31%, 1001-1500 m – 21%). Perceived distance was the most prevalent barrier to using the new route, followed by unsafety, and a lack of time.

Changes in visitor profiles and activity patterns following dog supportive modifications to parks: A natural experiment on the health impact of an urban policy (McCormack 2016)

This study investigated the influences of park modifications on activity patterns and visitor profiles, specifically it assessed the impact of implementing a municipal policy on off-leash dogs in city parks in Calgary, Canada [40]. Systematic observation was undertaken in 2011 and 2012, and captured patterns of use, activities, and visitors characteristics in four parks. The off-leash parks underwent modifications that fenced off the off-leash areas and further split that area between smaller and larger dogs.

The study found that in the off-leash parks, visitors with dogs participated in less intense activity relative to visitors without dogs. In addition, the intensity of children's activities decreased, while the intensity of adults' activities remained stable. Furthermore, accommodating off-leash dogs in parks has the potential to modify activities undertaken inside parks as well as the profile of visitors, but may not increase park visits among dog-walkers in the short term.

Research priorities

As outlined in the research recommendations above there are 3 main categories of research priorities identified here. First, research to better understand how to deliver various actions that could impact the factors (barriers and facilitators) identified and described here. Second, research to better understand specific target groups and their needs by (for example) age, gender and SIMD. Third, research to test the feasibility and effectiveness of actions and interventions informed by the first 2 stages and other relevant literature. There are existing theories and frameworks that are likely to be informative throughout such as self-efficacy theory and the Behaviour Change Wheel that could help apply behaviour change theory [41].

Conclusions

This scoping review of the evidence identified 12 factors that could be considered barriers or facilitators to recreational walking in Scotland. These factors spanned the individual, social and physical environment levels of the Ecological framework for determinants of health. Some of these factors could be directly addressed by walking advocates (e.g. awareness of routes and benefits, or facilities and infrastructure), while others may be harder or impossible to modify (e.g. age, gender, SIMD), but still give indications for specific target groups in the Scottish population. In all cases we have identified research gaps and opportunities for those wishing to build on the existing evidence base. Action across all these areas is likely to contribute to increasing levels of recreational walking in Scotland, and in turn contribute to improved health and well-being outcomes.

References

1. Kelly, P., M. Murphy, and N. Mutrie, *The Health Benefits of Walking, in Walking.* 2017, Emerald Publishing Limited. p. 61-79.
2. Kelly, P., et al., *Systematic review and meta-analysis of reduction in all-cause mortality from walking and cycling and shape of dose response relationship.* International Journal of Behavioral Nutrition and Physical Activity, 2014. 11(1): p. 132.
3. Kelly, P., et al., *Walking on sunshine: scoping review of the evidence for walking and mental health.* British Journal of Sports Medicine, 2018. 52(12): p. 800.
4. Arksey, H. and L. O'Malley, *Scoping studies: towards a methodological framework.* International journal of social research methodology, 2005. 8(1): p. 19-32.
5. Bauman, A.E., et al., *Cycling: Getting Australia Moving: Barriers, facilitators and interventions to get more Australians physically active through cycling.* 2008: Cycling Promotion Fund Melbourne.
6. Sallis, J.F., N. Owen, and E. Fisher, *Ecological models of health behavior.* Health behavior: Theory, research, and practice, 2015. 5: p. 43-64.
7. Scottish Natural Heritage, *Scotland's People and Nature Survey 2013/14.* 2014: www.nature.scot.
8. MORI, I., *Public Attitudes to Walking in Scotland.* 2014: Ipsos MORI.
9. IPSOS and Natural England, *Walking for Health: 'inactive' walkers – barriers to participation, and activity substitution.* 2011: naturalengland.org.uk.
10. Curry, N. and K. Brown, *Differentiating outdoor recreation: evidence drawn from national surveys in Scotland.* Journal of Policy Research in Tourism, Leisure and Events, 2010. 2(1): p. 29-50.
11. Dawson, J., et al., *Perceived barriers to walking in the neighbourhood environment and change in physical activity levels over 12 months.* British Journal of Sports Medicine, 2007. 41(9): p. 562.
12. Normansell, R., et al., *Numbers are not the whole story: a qualitative exploration of barriers and facilitators to increased physical activity in a primary care based walking intervention. (Report).* BMC Public Health, 2014. 14(1).
13. Paths for All, *Walking & Public Space - Public Opinion Survey 2009,* L. Streets, Editor. 2009: Paths for All.
14. Davies, N.J., L.M. Lumsdon, and R. Weston, *Developing Recreational Trails: Motivations for Recreational Walking.* Tourism Planning & Development, 2012. 9(1): p. 77-88.
15. Ramblers. *What stops people walking? .* 2010 [cited 2019 15 August].
16. ScotPulse. *Poll shows huge demand for investment in paths.* 2018 28 January 2018 [cited 2019 15 August].
17. Walking the Talk. *Research into the Provision of Path Attribute Information.* 2010.
18. Natural England, *Understanding the Barriers to Outdoor Recreation.* 2005.
19. Hunt, K., et al., *"You've got to walk before you run": Positive evaluations of a walking program as part of a gender- sensitized, weight-management program delivered to men through professional football clubs.* Health Psychology, 2013. 32(1): p. 57-65.
20. Pollard, T.M. and J. Wagnild, P16 *Gender differences in walking (for leisure, transport and in total) across adult life: a systematic review.* Journal of Epidemiology and Community Health, 2017. 71(Suppl 1): p. A59.
21. Crust, L., et al., *Walking the Walk: A Phenomenological Study of Long Distance Walking.* Journal of Applied Sport Psychology, 2011. 23(3): p. 243-262.
22. MacMillan, R.a., *Walking works: making the case to encourage of walking as a physical activity and recognise the value of benefits of Walking for Health.* 2013: walkingforhealth.org.uk.
23. Mitchell, F., et al., *A qualitative exploration of participants' experiences of taking part in a walking programme: Perceived benefits, barriers, choices and use of intervention resources.* Journal of Applied Research in Intellectual Disabilities, 2018.
24. Ogilvie, D., et al., *Interventions to promote walking: systematic review.* BMJ, 2007. 334(7605): p. 1204.
25. Martin, K.R., et al., *Patterns of leisure- time physical activity participation in a British birth cohort at early old age.* PloS one, 2014. 9(6): p. e98901.
26. Hulteen, R.M., et al., *Global participation in sport and leisure-time physical activities: A systematic review and meta-analysis.* Preventive Medicine, 2017. 95: p. 14-25.
27. Campbell, A., et al., *Physical activity investments that work— Get Scotland walking: a National Walking Strategy for Scotland.* British Journal of Sports Medicine, 2017. 52(12).
28. Natural England, *Monitor of Engagement with the Natural Environment.* 2015: assets.publishing.service.gov.uk.
29. Scottish Natural Heritage, *SPANS - 2017/2018 Participation in outdoor recreation.* 2018: www.nature.scot/.
30. The Scottish Government, *Scottish household survey 2017: annual report.* 2018.
31. Hong, J., *How does the seasonality influence utilitarian walking behaviour in different urbanization settings in Scotland?* Social Science & Medicine, 2016. 162: p. 143-150.
32. Brown, K.M., *The haptic pleasures of ground- feel: The role of textured terrain in motivating regular exercise.* Health and Place, 2017. 46: p. 307-314.
33. Giles-Corti, B. and R.J. Donovan, *Socioeconomic Status Differences in Recreational Physical Activity Levels and Real and Perceived Access to a Supportive Physical Environment.* Preventive Medicine, 2002. 35(6): p. 601-611.
34. Sustrans, *The National Walking and Cycling Network in Scotland.* 2017.
35. Owen, N., et al., *Understanding environmental influences on walking; Review and research agenda.* American journal of preventive medicine, 2004. 27(1): p. 67.
36. Williams, M.D., et al., *Interventions to Increase Walking Behavior.* Medicine & Science in Sports & Exercise, 2008. 40(7 Suppl 1): p. S567-S573.
37. Humpel, N., et al., *Trial of print and telephone delivered interventions to influence walking.* Preventive Medicine, 2004. 39(3): p. 635-641.
38. Foster, C., et al., *What works to promote walking at the population level? A systematic review.* British journal of sports medicine, 2018. 52(12): p. 807.
39. Pazin, J., et al., *Effects of a new walking and cycling route on leisure-time physical activity of Brazilian adults: A longitudinal quasi-experiment.* Health and Place, 2016. 39(C): p. 18-25.
40. McCormack, G.R., et al., *Changes in visitor profiles and activity patterns following dog supportive modifications to parks: A natural experiment on the health impact of an urban policy.* SSM - Population Health, 2016. 2: p. 237-243.
41. Biddle, S.J., N. Mutrie, and T. Gorely, *Psychology of Physical Activity: Determinants, Well-Being and Interventions.* 2015.

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